

What is claimed is:

1. A method of modeling data comprising:
5 generating at least one knowledge entity wherein
each generated knowledge entity is generated from at least
one data source and represents the at least one data source
from which the generated knowledge entity was generated;
 storing the at least one knowledge entity in a
10 knowledge base; and
 providing a set of knowledge services that
synchronize each generated knowledge entity with the at
least one data source from which the knowledge entity was
generated.
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2. The method of claim 1 wherein generating the at
least one knowledge entity comprises arranging a
hierarchical arrangement of at least one attribute-value
pair associated with the at least one data source using an
20 extensible markup language.
3. The method of claim 1 wherein one of the set of
knowledge services comprises a service that updates the at
least one knowledge entity in response to receiving an
25 event representing a change in the at least one data source
from which the at least one knowledge entity was generated.
4. The method of claim 1 wherein one of the set of
knowledge services comprises a service that updates the at
30 least one data sources from which the at least one
knowledge entity was generated in response to receiving an

event representing a change in the at least one knowledge entity.

5 5. The method of claim 1 wherein the set of knowledge services further comprises:

 a service that provides a set of data retrieval services that access the at least one data source from which the at least one knowledge entity was generated; and

10 a service that provides a set of data conversion services that translate data content, the data content stored in the at least one data source from which the at least one knowledge entity was generated, to an alternative format.

15 6. The method of claim 5 wherein one of the set of data retrieval services comprises accessing at least one attribute-value pair associated with the at least one data source from which the at least one knowledge entity was generated in response to an access request, the access
20 request identifying the at least one knowledge entity.

7. The method of claim 6 wherein accessing the at least one attribute-value pair comprises:

25 instantiating a business object using the access request and a pre-defined data connectivity connection, the pre-defined data connectivity connection previously defined for the at least one data source from which the at least one knowledge entity was generated; and

30 executing the pre-defined connectivity connection associated with the business object.

8. The method of claim 5 wherein one of the set of data retrieval services comprises accessing administrative information stored in the at least one knowledge entity in response to a list retrieval request, the list retrieval
5 request identifying the at least one knowledge entity.

9. The method of claim 5 wherein one of the set of conversion services comprises generating a formatted data set from the at least one knowledge entity using a data
10 conversion algorithm and a conversion request, the conversion request identifying the at least one knowledge entity and a data format.

10. The method of claim 5 wherein one of the set of
15 conversion services comprises:

receiving a pattern conversion request, the pattern conversion request identifying the at least one knowledge entity and a data pattern;
comparing at least one attribute-value pair in
20 the at least one knowledge entity to the data pattern; and
granting access to the at least one attribute-value pair based on the comparison.

11. An article comprising a machine-readable medium
25 storing machine-readable instructions that, when applied to the machine, cause the machine to:

generate at least one knowledge entity wherein each generated knowledge entity is generated from at least one data source and represents the at least one data source
30 from which the generated knowledge entity was generated;
store the at least one knowledge entity in a knowledge base; and

provide a set of knowledge services that
synchronize each generated knowledge entity with the at
least one data source from which the knowledge entity was
generated.

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12. The article of claim 11 including instructions
that, when applied to the machine, cause the machine to
arrange a hierarchical arrangement of at least one
attribute-value pair associated with the at least one data
10 source using an extensible markup language.

13. The article of claim 11 including instructions
that, when applied to the machine, cause the machine to
update the at least one knowledge entity in response to
15 receiving an event representing a change in the at least
one data source from which the at least one knowledge
entity was generated.

14. The article of claim 11 including instructions
20 that, when applied to the machine, cause the machine to
update the at least one data sources from which the at
least one knowledge entity was generated in response to
receiving an event representing a change in the at least
one knowledge entity.

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15. The article of claim 11 including instructions
that, when applied to the machine, cause the machine to:
provide a set of data retrieval services that
access the at least one data source from which the at least
30 one knowledge entity was generated; and

provide a set of data conversion services that
translate data content, the data content stored in the at

least one data source from which the at least one knowledge entity was generated, to an alternative format.

16. The article of claim 15 including instructions
5 that, when applied to the machine, cause the machine to access at least one attribute-value pair associated with the at least one data source from which the at least one knowledge entity was generated in response to an access request, the access request identifying the at least one
10 knowledge entity.

17. The article of claim 16 including instructions that, when applied to the machine, cause the machine to:
 instantiate a business object using the access
15 request and a pre-defined data connectivity connection, the pre-defined data connectivity connection previously defined for the at least one data source from which the at least one knowledge entity was generated; and
 execute the pre-defined connectivity connection
20 associated with the business object.

18. The article of claim 15 including instructions that, when applied to the machine, cause the machine to access administrative information stored in the at least
25 one knowledge entity in response to a list retrieval request, the list retrieval request identifying the at least one knowledge entity.

19. The article of claim 15 including instructions
30 that, when applied to the machine, cause the machine to generate a formatted data set from the at least one knowledge entity using a data conversion algorithm and a

conversion request, the conversion request identifying the at least one knowledge entity and a data format.

20. The article of claim 15 including instructions
5 that, when applied to the machine, cause the machine to:
compare at least one attribute-value pair in the at least one knowledge entity to a data pattern in response to a pattern conversion request, the pattern conversion request identifying the at least one knowledge entity and
10 the data pattern; and
grant access to the at least one attribute-value pair based on the comparison.

21. A system comprising:
15 a computer network;
a directory coupled to the network, the directory storing a data repository;
a service delivery device coupled to the network, the service delivery device including a processor and
20 memory storing instructions that, in response to receiving a request for access to a service, cause the processor to:
generate at least one knowledge entity wherein each generated knowledge entity is generated from at least one data source and represents the at least one data source
25 from which the generated knowledge entity was generated;
store the at least one knowledge entity in a knowledge base; and
provide a set of knowledge services that
synchronize each generated knowledge entity with the at
30 least one data source from which the knowledge entity was generated.

22. The system of claim 21 wherein the memory stores instructions that, in response to receiving the request, cause the processor to arrange a hierarchical arrangement of at least one attribute-value pair associated with the at least one data source using an extensible markup language.

23. The system of claim 21 wherein the memory stores instructions that, in response to receiving the request, cause the processor to update the at least one knowledge entity in response to receiving an event representing a change in the at least one data source from which the at least one knowledge entity was generated.

24. The system of claim 21 wherein the memory stores instructions that, in response to receiving the request, cause the processor to update the at least one data sources from which the at least one knowledge entity was generated in response to receiving an event representing a change in the at least one knowledge entity.

25. The system of claim 21 wherein the memory stores instructions that, in response to receiving the request, cause the processor to:

provide a set of data retrieval services that access the at least one data source from which the at least one knowledge entity was generated; and

provide a set of data conversion services that translate data content, the data content stored in the at least one data source from which the at least one knowledge entity was generated, to an alternative format.

26. The system of claim 25 wherein the memory stores instructions that, in response to receiving the request, cause the processor to access at least one attribute-value pair associated with the at least one data source from
5 which the at least one knowledge entity was generated in response to an access request, the access request identifying the at least one knowledge entity.

27. The system of claim 26 wherein the memory stores
10 instructions that, in response to receiving the request, cause the processor to:

 instantiate a business object using the access request and a pre-defined data connectivity connection, the pre-defined data connectivity connection previously defined
15 for the at least one data source from which the at least one knowledge entity was generated; and

 execute the pre-defined connectivity connection associated with the business object.

20 28. The system of claim 25 wherein the memory stores instructions that, in response to receiving the request, cause the processor to access administrative information stored in the at least one knowledge entity in response to a list retrieval request, the list retrieval request
25 identifying the at least one knowledge entity.

29. The system of claim 25 wherein the memory stores instructions that, in response to receiving the request, cause the processor to generate a formatted data set from
30 the at least one knowledge entity using a data conversion algorithm and a conversion request, the conversion request

identifying the at least one knowledge entity and a data format.

30. The system of claim 25 wherein the memory stores
5 instructions that, in response to receiving the request,
cause the processor to:
- compare at least one attribute-value pair in the
at least one knowledge entity to a data pattern in response
to a pattern conversion request, the pattern conversion
10 request identifying the at least one knowledge entity and
the data pattern; and
 - grant access to the at least one attribute-value
pair based on the comparison.